

Customer No.: 31561
Application No.: 10/707,704
Docket No.: 11964-US-PA

AMENDMENT

Please amend the application as indicated hereafter.

In the Claims :

1-8 (cancelled).

9. (original) A non-volatile memory device, comprising:

a substrate, wherein the substrate has a trench;

a gate disposed over and completely filling the trench;

a bottom oxide layer disposed between the gate and the trench surface;

a charge-trapping layer disposed between the gate and the bottom oxide layer;

a top oxide layer disposed between the gate and the charge-trapping layer; and

a plurality of source/drain regions configured in the substrate outside the gate.

10. (original) The non-volatile memory device of claim 9, wherein the gate extends over a portion of the substrate outside the trench.

11. (original) The non-volatile memory device of claim 10, wherein bottom oxide layer is disposed between the gate and the substrate.

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12. (original) The non-volatile memory device of claim 9, wherein the device further comprises a plurality of spacers located on the sidewalls of the gate.

13. (original)The non-volatile memory device of claim 12, wherein the device further comprises a plurality of lightly doped regions located in the substrate underneath the spacers.

14. (original)The non-volatile memory device of claim 12, wherein material constituting the spacers comprises silicon nitride.

15. (original) The non-volatile memory device of claim 9, wherein material constituting the gate comprises polysilicon.

16. (original)The non-volatile memory device of claim 9, wherein material constituting the charge-trapping layer is selected from the group consisting of a nitride compound, tantalum oxide, titanic strontium and hafnium oxide.

17. (original) The non-volatile memory device of claim 9, wherein the device further comprises a silicide layer disposed on the gate surface.

18. (original)The non-volatile memory device of claim 17, wherein material

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constituting the metal silicide layer is selected from the group consisting of cobalt silicide, titanium silicide, tungsten silicide, molybdenum silicide, platinum silicide and nickel silicide.